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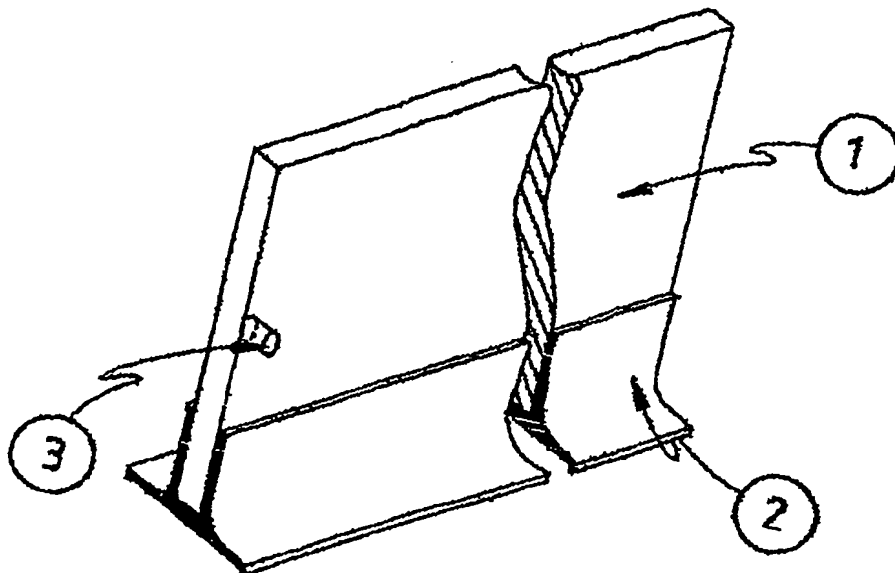
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- (71) Applicant and  
(72) Inventor: **HANCOCK, Darras, L., J.** [AU/AU]; "Willbara", MS 366, Grandchester, QLD 4340 (AU).
- (74) Agent: **WALLINGTON-DUMMER**; G.P.O. Box 3888, Sydney, NSW 2001 (AU).
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- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: BENCH GUARD



(57) Abstract: A demountable safety guard adapted for prevention of accidental urged dislodgment of an article or liquid over an edge of a fixed horizontal surface; said edge not otherwise precluding the dislodgement of said article.

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### BENCH GUARD

The present invention relates to safety devices associated with working surfaces such as the tops of kitchen, work or laboratory benches and the like, and more particularly to means for the prevention of accidental dislodgement of objects or spillage of fluids from those working surfaces.

### BACKGROUND

10 For many people the lack of a suitable device to prevent the accidental spillage of materials or fluids and the accidental dislodgement of objects from benches, cooktops and tables, has resulted in serious injury and or expense and even, in extreme cases, to fatalities.

15 The accidental spillage of hot or caustic fluids (for example hot tea or coffee) from benches and tables in the kitchen is one of the leading causes of death and injury for young children in western civilizations. The elderly and infirm also suffer from such occurrences.

20 The accidental dislodgement of objects and the spillage of fluids from work benches and tables can impact on industry both financially and through injury to employees. School science benches are another area of potential risk if an object is accidentally dislodged or a

fluid spilled; hot and caustic substances again being a leading cause of injury to school age children in the classroom.

It is an object of the present invention to offer an aid in the prevention of such incidents.

#### BRIEF DESCRIPTION OF INVENTION

Accordingly, in one broad form of the invention, there is provided a demountable safety guard adapted for prevention of accidental urged dislodgment of an article or liquid over an edge of a fixed horizontal surface; said edge not otherwise precluding the dislodgement of said article.

Preferably said surface includes a bench top, a cooktop or a table top.

Preferably said guard comprises a substantially vertical elongate rectangular member having an outwardly facing surface and an inwardly facing surface bounded by edges, extending along at least a portion of an edge of said surface.

Preferably said edge is any edge of said surface from which said article can fall when urged to within sufficiently close proximity of said edge.

Preferably said guard is adapted to be inserted into a slot in said surface.

Preferably said slot is provided with a cover strip; said strip adapted to prevent the ingress of dirt and other matter into said slot.

Preferably said guard is adapted to be inserted into a guard retaining means attached to said surface.

Preferably said retaining means is in the form of an extruded channel, said channel adapted to be attached to said surface.

Preferably said extruded channel is attached to said surface by attachment means including one or more of:

- a) an applied adhesive
- b) a double sided adhesive tape
- 15 c) magnetic means
- d) suction means
- e) mechanical means including screws and rivets and the like.

Preferably said guard is attached to said surface by means of hinged elements.

Preferably said guard and said guard retaining means are formed of metallic materials.

Preferably said guard and said guard retaining means are formed of non-metallic materials.

Preferably said guard and said guard retaining means are formed of a combination of metallic and non-metallic materials.

Accordingly, in another broad form of the invention,  
5 there is provided a method for the prevention of the accidental urged dislodgement of an article or liquid over an edge of a fixed horizontal surface, said method including the provision of a guard member disposed along at least a portion of said edge of said surface, said guard  
10 member extending a sufficient height above said surface thereby defining a barrier to dislodgement of said article or liquid.

Accordingly, in yet another broad form of the invention, there is provided a method of providing a safety  
15 guard member for the edge of a fixed horizontal surface wherein said guard member is inserted into a slot disposed along said edge of said surface.

Accordingly, in yet another broad form of the invention, there is provided a method of providing a safety  
20 guard member for the edge of a fixed horizontal surface wherein said guard member is retained in an extruded channel fixed along an edge of said surface.

Accordingly, in yet another broad form of the invention, there is provided a method of providing a safety

guard member for the edge of a fixed horizontal surface wherein said guard member is attached along an edge of said surface by hinge elements.

## 5 BRIEF DESCRIPTION OF THE DRAWINGS

Embodiments of the present invention will now be described with reference to the accompanying drawings wherein:

Figure 1 is a perspective view of a bench top safety  
10 feature according to a first embodiment of the invention.

Figure 2 is a perspective view of an alternative retaining means of the embodiment of figure 1.

Figure 3 is a perspective view of a bench top safety feature according to a second embodiment of the invention.

15 Figure 4 is a perspective view of a component for use with the arrangement of any one of figures 1, 2 or 3.

Figure 5 is a perspective view of means of attachment of a component of the embodiment of figure 1.

Figure 6 is a perspective view of the embodiment of  
20 figure 1 in use.

Figure 7 is a perspective view of visual alignment of a child's eyes compared with adult eyes with and without use of embodiments of the present invention.

Figure 8 is a perspective view of a bench guard in accordance with a further embodiment of the present invention.

Figure 9 is a bench guard in accordance with a further  
5 embodiment of the present invention.

Figure 10 is a bench guard in accordance with yet a further embodiment of the present invention.

#### **DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS**

10        Embodiments of the present invention provide for the addition of suitable guard elements to the periphery of working surfaces where the edges of those working surfaces are not otherwise protected, such as for example by splashbacks or abutting walls.

15        In a first preferred embodiment of the invention with reference to figures 1 and 2, there is provided a vertically extending guard element 1 located in a retaining element 2 (or 4). Guard element 1 is in the form of an elongate rigid strip of suitable height and thickness  
20 extending along at least a portion of an exposed edge of a working surface as may best be seen in figure 6.

As may be seen in figure 5, in this first embodiment the guard element 1 is secured to the working surface of a bench top 6 by means of a retaining element 2 (or 4) in the

form of an extruded channel section. Retaining element 2 (or 4) may be secured to the bench top 6 by a variety of means as shown in figure 6, for example by screws 9, rivets 10 or by means of two-sided self-adhesive strip 8. Further  
5 methods of holding the retaining element 2 (or 4) to the surface of bench top 6 may included bonding with suitable adhesives, or non-mechanical means such as magnetic strips or by suction means.

Guard element 1 may be fixed either permanently or  
10 releaseably or semi-permanently (for example by a friction fit or by a moulded locking fit) in retaining element 2 (or 4) or may be held in place as a friction fit so as to allow for its removal when the guard function is not required. Guard element 1 may optionally be provided with a hole 3 so  
15 as to allow for its storage at some convenient location by suspension from a hook (not shown).

In a second preferred embodiment of the invention as shown in figure 3, guard element 1 is mounted in a slot 5 located along an edge of bench top 6. The slot may be  
20 formed by machining into the surface of the bench top or as part of an edging strip attached to the edge of the bench top.

In this embodiment also, guard element 1 may be permanently fixed either permanently or semi-permanently



(for example by a friction fit or by a moulded locking fit) in slot 5 or alternatively may be located in the slot as a friction fit so as to be removable when desired. In this latter case slot 5 may be provided with a cover strip 7 (shown in figure 4) so as to prevent the ingress of material or liquids into slot 5 and as an aid to appearance.

In a further preferred embodiment of the invention, the slot may be covered by a spring-loaded cover strip which is urged into position over the slot as the guard element is removed.

In yet a further preferred embodiment of the invention, guard element 1 may be operatively attached to bench top 6 by means of hinges. The hinges may be permanently attached to the working surface of the bench top or alternatively could be demountable.

In all the embodiments described, the guard element may be formed from any of a range of suitable materials, including laminates of timber, pressed fibre or plastic or combinations thereof and metals such as steel or aluminium. Non-metallic materials may be transparent or opaque.

In use the guard element acts both to prevent liquids from flowing over the edge, or objects from accidentally being pushed over the edge of a bench top and as an

impediment to small children reaching up to pull an object over the edge. In particular, a guard element arranged along the front of a cooktop located in the surface of a kitchen bench top will serve to minimize the possibility of  
5 this highly dangerous occurrence.

For embodiments of the invention in which the guard element is removable from the slot, different guard elements may be provided in a range of heights to suit different working and safety conditions. Thus for example  
10 in a laboratory situation where relatively tall vessels are in use, a relatively high guard can be inserted into the retaining element, whereas where the only concern is the spilling of liquids, a relatively low guard may be appropriate.

15 With reference to Figure 7 a bench guard 10 in accordance with any of the previously described embodiments is illustrated in position on a stove or bench surface 11 and is arranged to have barrier height H selected such that when viewed from the eyes of a child at child head height  
20 on a floor 12 adjacent the bench or cooktop 11 the guard 10 acts as a visual barrier to the child seeing items beyond the barrier on the cook top or bench top 11. The barrier height H is further selected so that it is not so high that it impedes the sight line of an adult over the top of the

guard 10. The end result is that the child is not able to see items on the other side of the guard whereby the child cannot become attracted to those items. Conversely the adult sight line is not impeded so that the adult may still  
5 operate effectively in a kitchen or like environment with the items such as saucepan 13 located on the stove or bench top 11.

With reference to Figures 8, 9 and 10, three different embodiments of a guard comprising, respectively, guards 20,  
10 30, 40 are illustrated in perspective view. Each guard is arranged to have a different height H above the surface of a bench top comprising heights H1, H2 and H3. Bearing in mind that the guard material itself is made from an opaque substance it is possible for a user to select from the  
15 various heights H1, H2, H3 so as to achieve the outcomes illustrated in Figure 7 as between a child and an adult.

With further reference to Figure 8 the guard 20 comprises a guard support rail 21 having a vertically aligned slot 22 therein which slidably receives in a  
20 vertical direction a substantially solid and contiguous guard member 23 therein and throughout the length of the slot 22.

As illustrated by the vertical arrow disengagement of the guard member 23 from slot 22 is accomplished by a

vertical movement in an upward direction relative to rail  
21. Conversely engagement is carried out in the reverse  
direction. The shape and relative angle of slot 22 as  
compared with bench top 11 is such that only substantially  
5 vertical engagement and disengagement movements are  
possible.

This arrangement ensures that the guard member 23  
cannot be disengaged by a lateral pulling motion as might  
be expected by a child. On the other hand vertical  
10 disengagement is relatively easy for an adult for the  
purposes of cleaning and the like.

The above describes only some embodiments of the  
present invention and modifications, obvious to those  
skilled in the art, can be made thereto without departing  
15 from the scope and spirit of the present invention.

## CLAIMS

1. A demountable safety guard adapted for prevention of accidental urged dislodgment of an article or liquid  
5 over an edge of a fixed horizontal surface; said edge not otherwise precluding the dislodgement of said article.
2. The safety guard of claim 1 wherein said surface includes a bench top, a cooktop and a table top.
- 10 3. The safety guard of claim 2 wherein said guard comprises a substantially vertical elongate rectangular member having an outwardly facing surface and an inwardly facing surface bounded by edges, extending along at least a portion of an edge of said  
15 surface.
4. The safety guard of claim 3 wherein said edge is any edge of said surface from which said article can fall when urged to within sufficiently close proximity of said edge.
- 20 5. The safety guard of any one of claims 1 to 4 wherein said guard is adapted to be inserted into a slot in said surface.
6. The safety guard of claim 5 wherein said slot is provided with a cover strip; said strip adapted to

prevent the ingress of dirt and other matter into said slot.

7. The safety guard of any of claims 1 to 4 wherein said guard is adapted to be inserted into a guard retaining means attached to said surface.

8. The safety guard of claim 7 wherein said retaining means is in the form of an extruded channel, said channel adapted to be attached to said surface.

9. The safety guard of claim 8 wherein said extruded channel is attached to said surface by attachment means including

a. an applied adhesive

b. a double sided adhesive tape

c. magnetic means

d. suction means

e. mechanical means including screws and rivets and the like.

10. The safety guard of claim 4 wherein said guard is attached to said surface by means of hinged elements.

11. The safety guard of any of claims 1 to 10 wherein said guard and said guard retaining means are formed of metallic materials.

12. The safety guard of claim of any of claims 1 to 10 wherein said guard and said guard retaining means are formed of non-metallic materials.
13. The safety guard of any of claims 1 to 10 wherein said  
5 guard and said guard retaining means are formed of a combination of metallic and non-metallic materials.
14. A method for the prevention of the accidental urged dislodgement of an article or liquid over an edge of a fixed horizontal surface, said method including the  
10 provision of a guard member disposed along at least a portion of said edge of said surface, said guard member extending a sufficient height above said surface thereby defining a barrier to dislodgement of said article or liquid.
- 15 15. A method of providing a safety guard member for the edge of a fixed horizontal surface wherein said guard member is inserted into a slot disposed along said edge of said surface.
16. A method of providing a safety guard member for the  
20 edge of a fixed horizontal surface wherein said guard member is retained in an extruded channel fixed along an edge of said surface.
17. A method of providing a safety guard member for the edge of a fixed horizontal surface wherein said guard

member is attached along an edge of said surface by hinge elements.

18. A safety guard substantially as herein described with reference to the accompanying drawings.

5 19. A guard system for preventing accidental urged dislodgement of an article over a leading edge of a fixed horizontal surface; said guard arrangement comprising a rail adapted for alignment with reference to said edge and for affixing to said surface thereby  
10 to present a substantially vertically oriented slot for slidable engagement of a guard member therein; said guard member of substantially rectangular cross section in both longitudinal and lateral directions; said guard member adapted for substantially vertical  
15 engagement and disengagement with respect to said slot in said rail; said guard member substantially opaque throughout.

20. The guard member of Claim 19 wherein the height of said guard member is selected so that said guard  
20 member acts as a visual barrier, when installed on said surface, to visualisation of objects on the far side of said guard member when viewed by a child but not by an adult.



21. A method of minimising accidental urged dislodgement of an article from a surface relative to an edge thereof; said method comprising providing the guard member of any one of Claims 19 or 20 as a kit of two component parts.

22. The method of Claim 21 wherein said two component parts comprise a rail having a slot therein and a substantially opaque guard member for vertical reception in said slot.

23. A guard device comprised of two and only two components.

24. The guard device of Claim 23 wherein said two components comprise a guard member and a rail having a slot therein for vertical reception of said guard member therein.

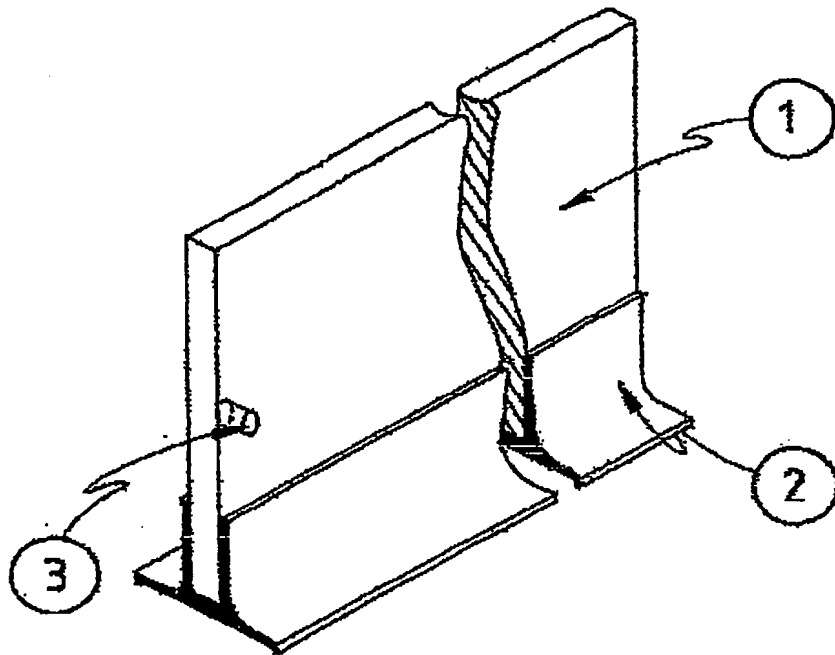
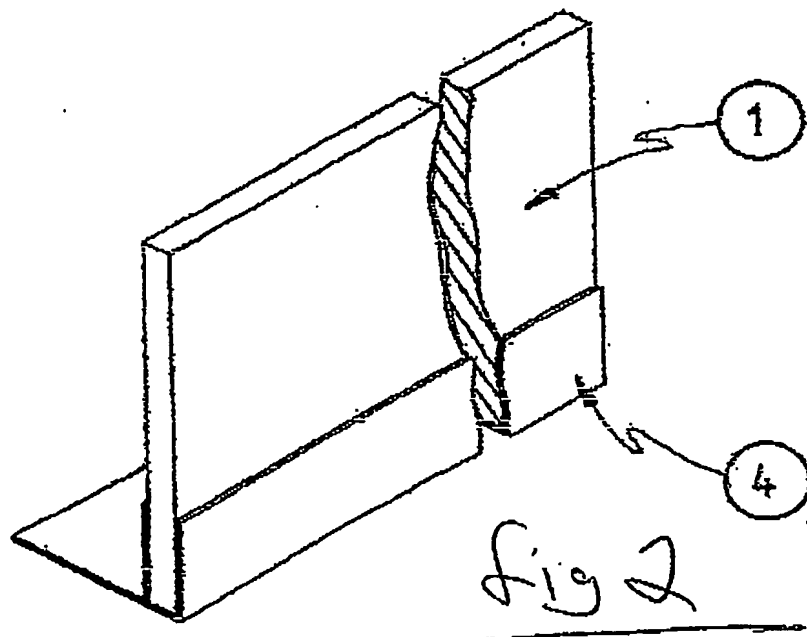


FIGURE 1.



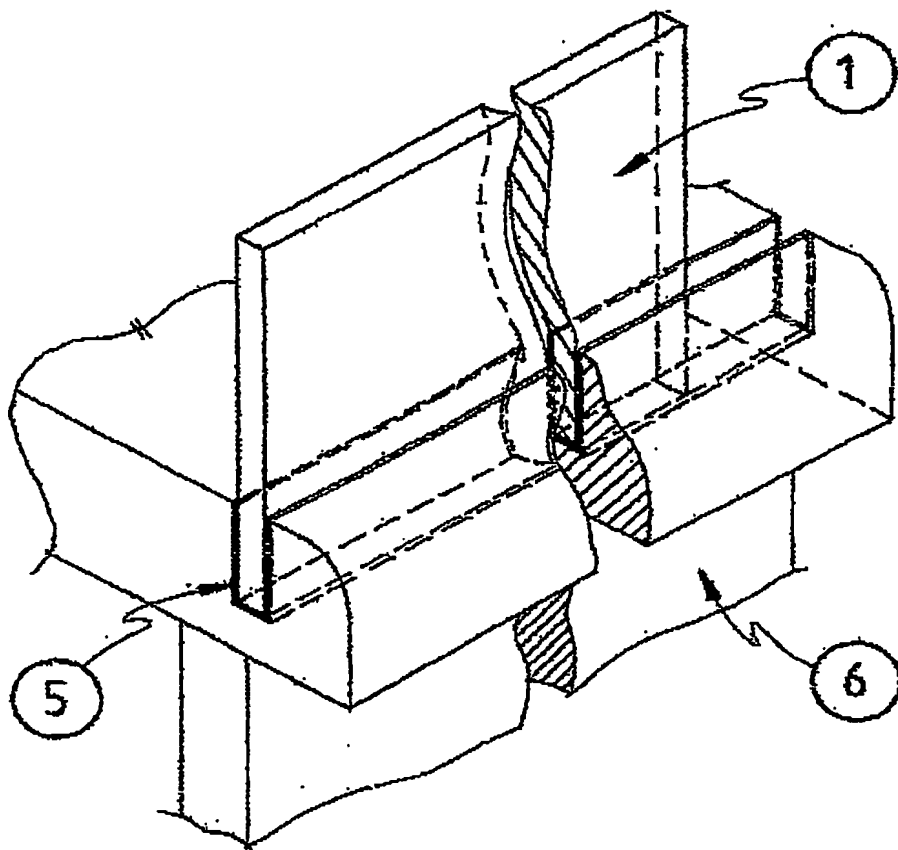
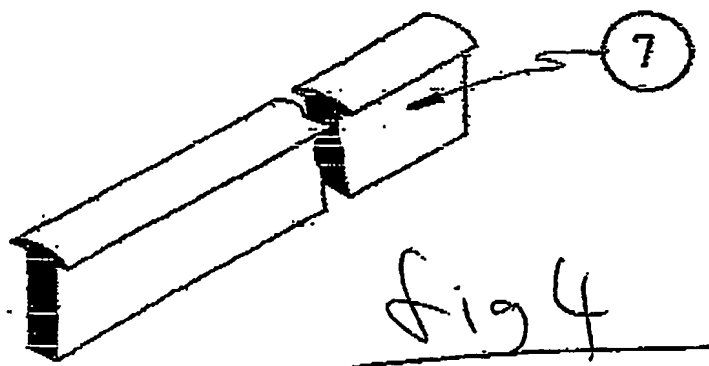


FIGURE 3.



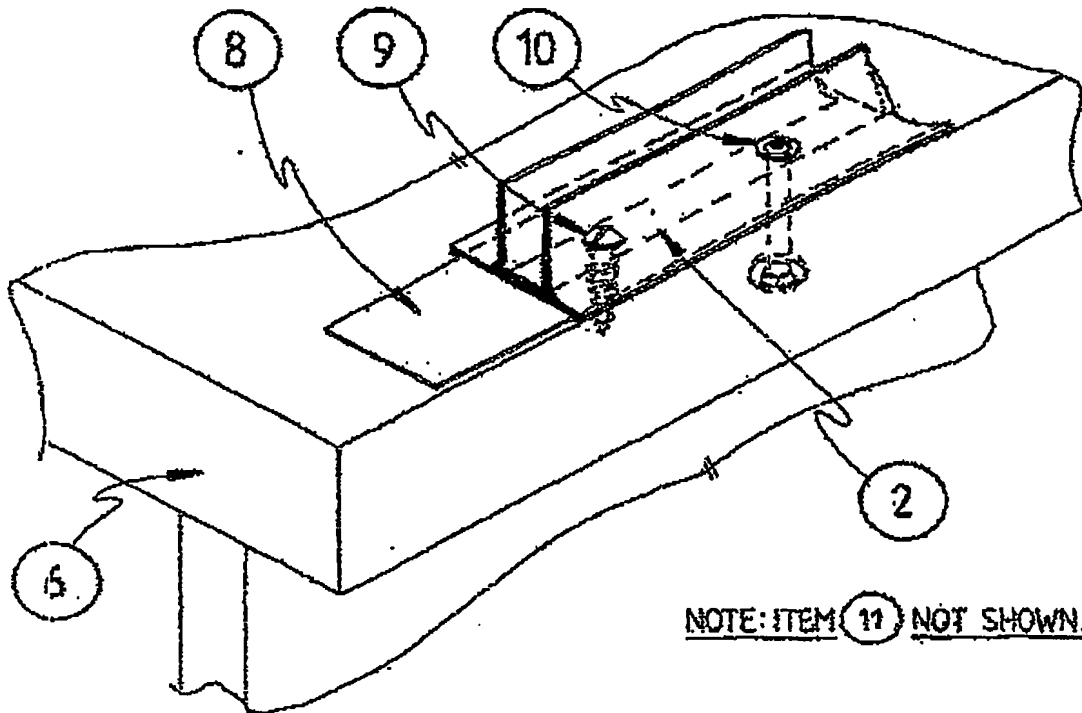
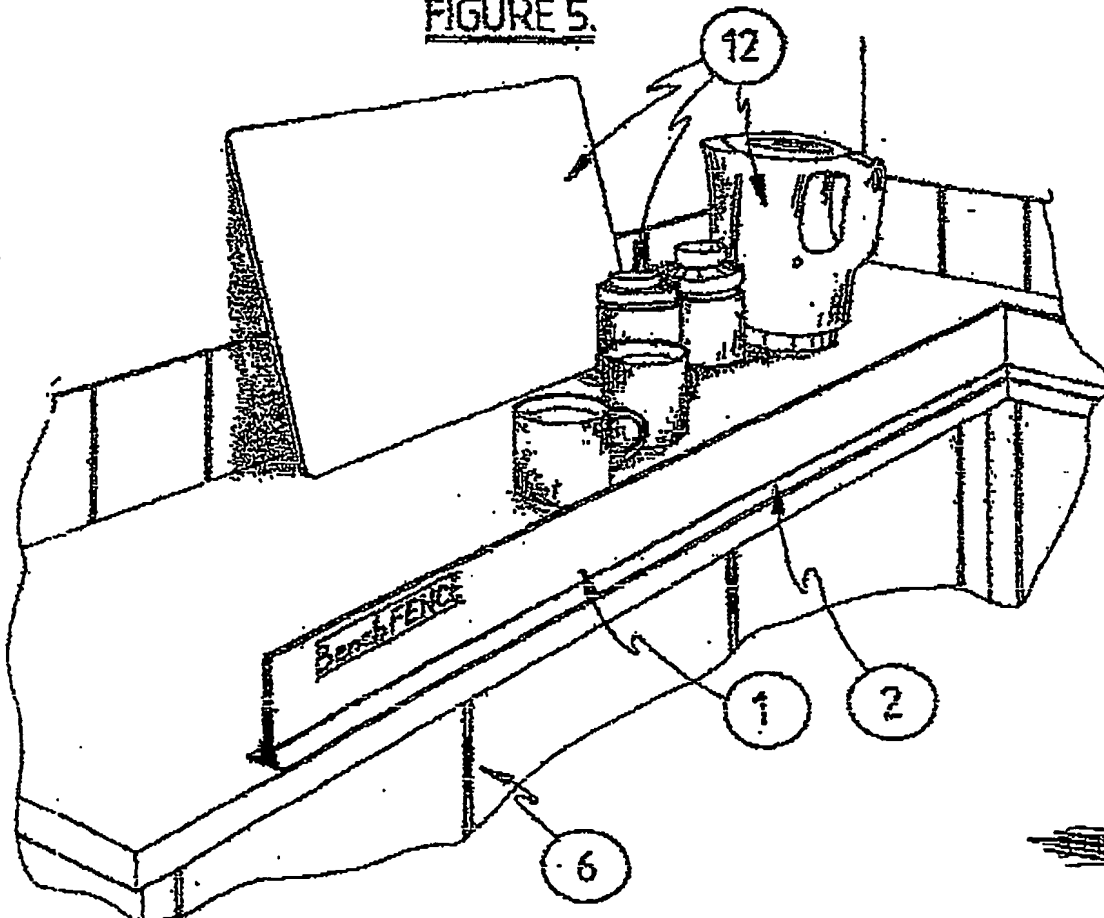


FIGURE 5.



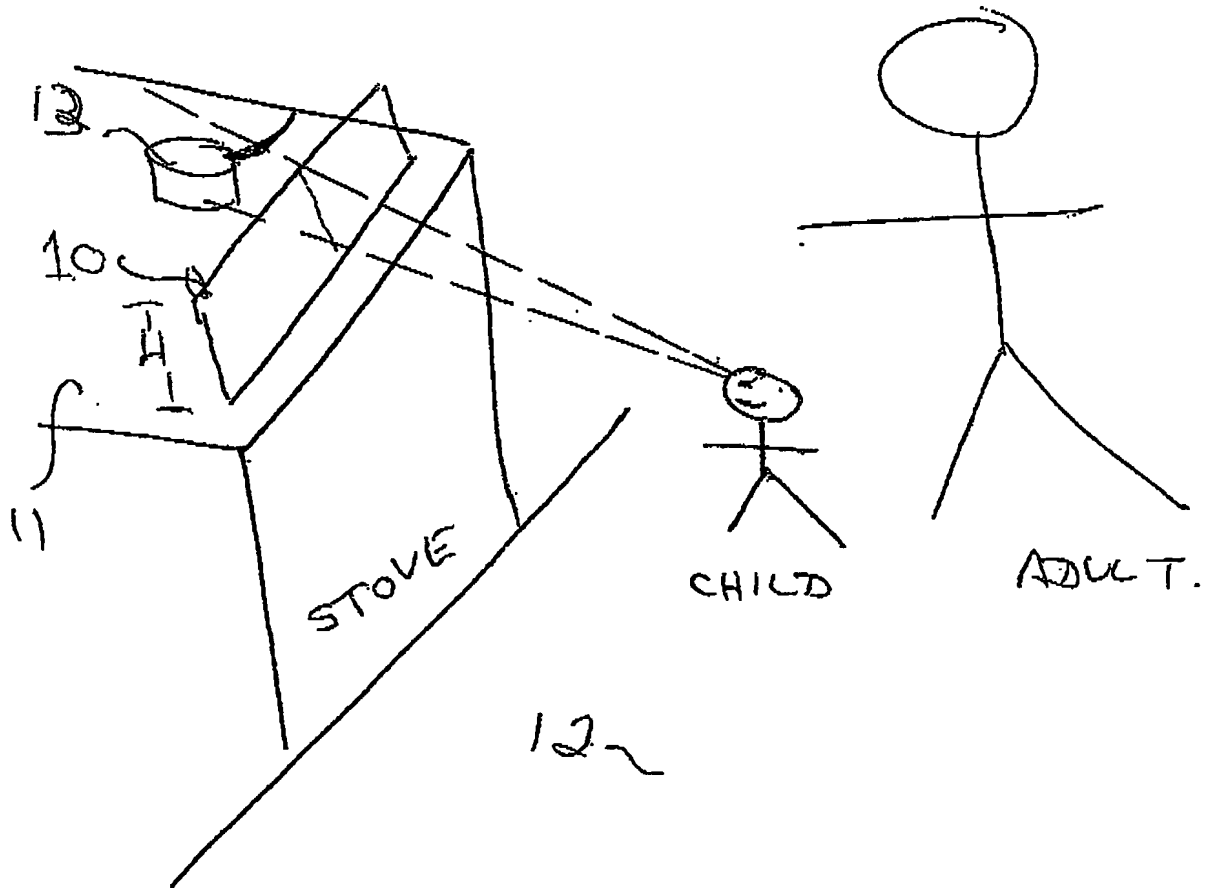
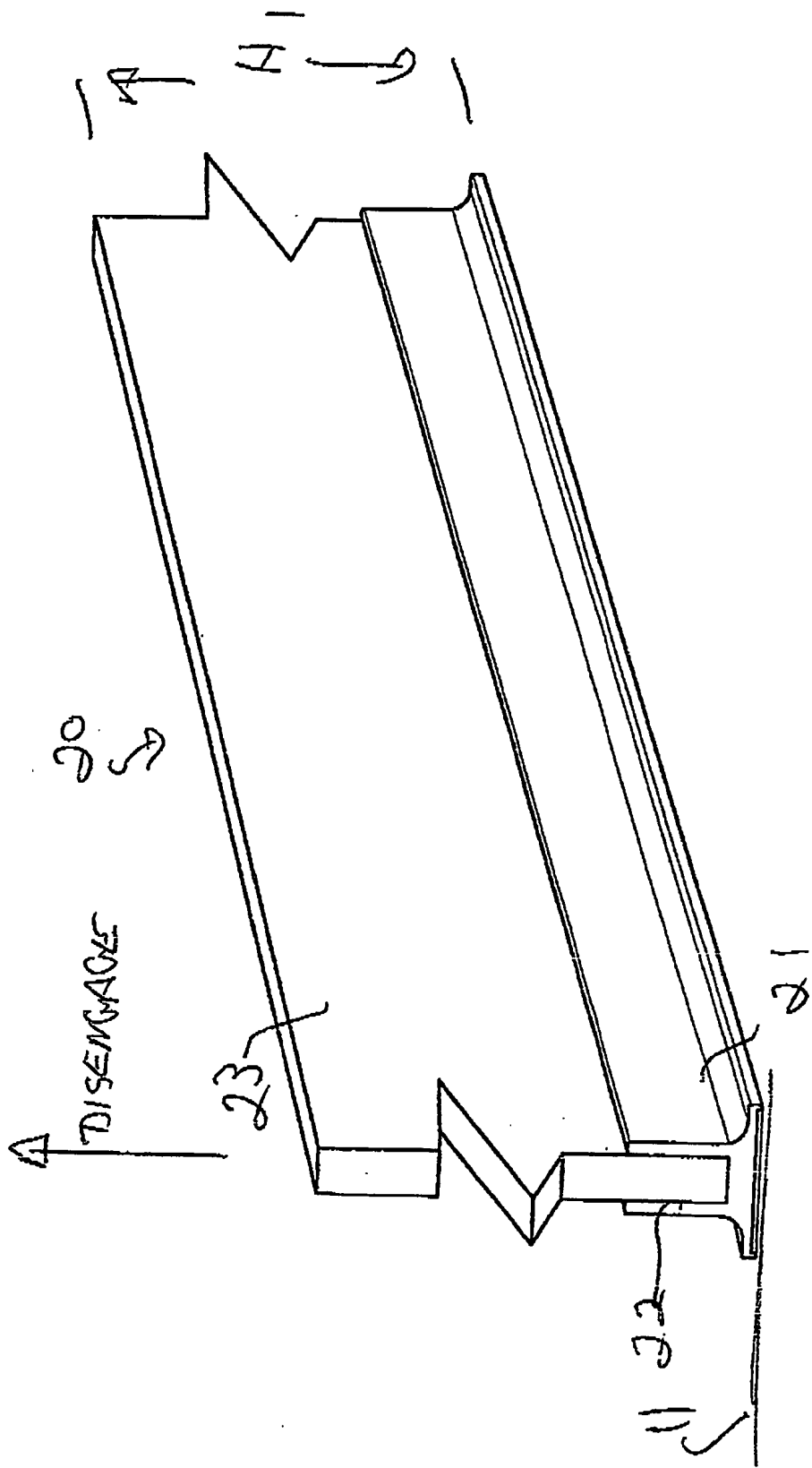
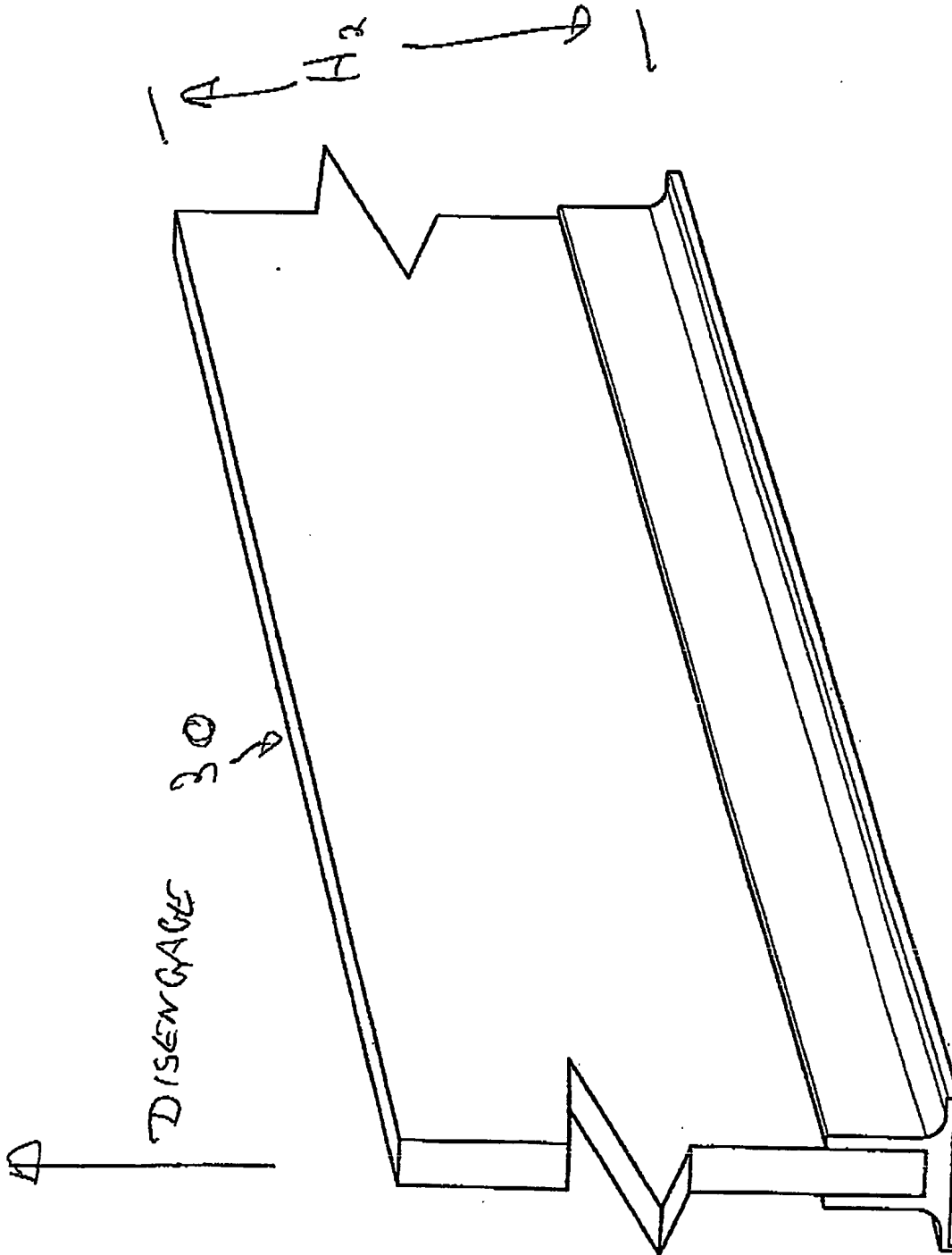


fig 7.



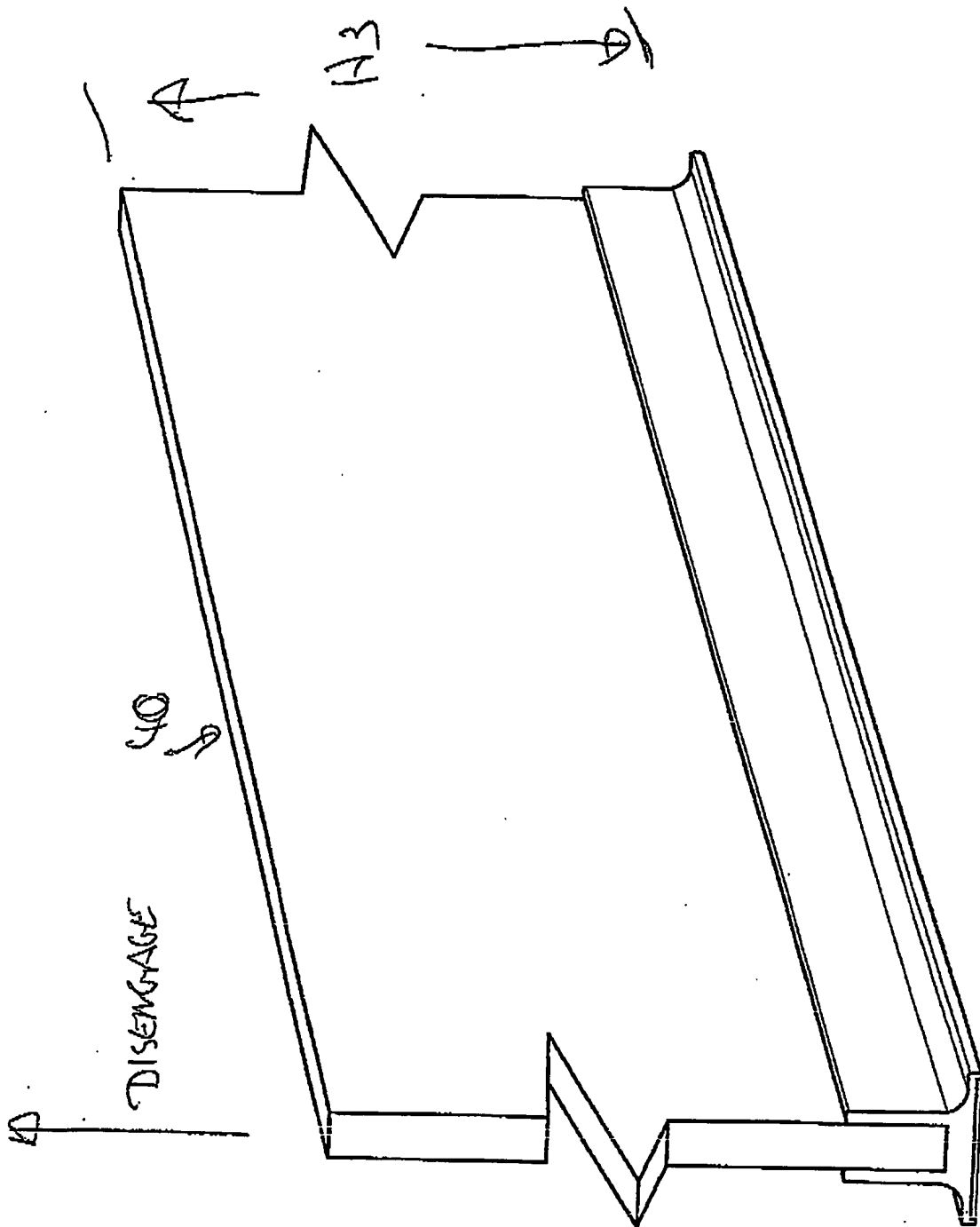
Perspective view

fig 8



Perspective view

fig 9



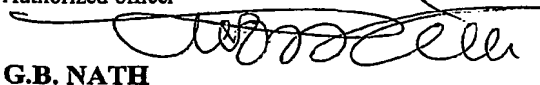
Perspective view

Fig 10



## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/AU02/01529

<b>A. CLASSIFICATION OF SUBJECT MATTER</b>												
Int. Cl. <sup>7</sup> : A47B 13/08												
According to International Patent Classification (IPC) or to both national classification and IPC												
<b>B. FIELDS SEARCHED</b>												
Minimum documentation searched (classification system followed by classification symbols)												
IPC(7): A47B 13/08												
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched												
US CLASS MARKS: 108/27												
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)												
DWPI: IPC class marks as above + Keywords (Guard or Barrier or shield or Vertical)												
IFIPAT: US Class mark as above												
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>												
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.										
X	EP 364766B (STEINHILBER), 25 April 1990 Figures	1-14										
A	WO 97/32503A (HAYMAN-CHAFFEY), 12 September 1997 Figures	1-14										
X	US5733022A (WHETSTONE), 31 March 1998 Figures	1-14										
<input type="checkbox"/> Further documents are listed in the continuation of Box C <input checked="" type="checkbox"/> See patent family annex												
<p>* Special categories of cited documents:</p> <table border="0"> <tr> <td>"A" document defining the general state of the art which is not considered to be of particular relevance</td> <td>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</td> </tr> <tr> <td>"E" earlier application or patent but published on or after the international filing date</td> <td>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</td> </tr> <tr> <td>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</td> <td>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</td> </tr> <tr> <td>"O" document referring to an oral disclosure, use, exhibition or other means</td> <td>"&amp;" document member of the same patent family</td> </tr> <tr> <td>"P" document published prior to the international filing date but later than the priority date claimed</td> <td></td> </tr> </table>			"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family	"P" document published prior to the international filing date but later than the priority date claimed	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention											
"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone											
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art											
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family											
"P" document published prior to the international filing date but later than the priority date claimed												
Date of the actual completion of the international search 11 March 2003		Date of mailing of the international search report 11 MARCH 2003										
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustalia.gov.au Facsimile No. (02) 6285 3929		Authorized officer  G.B. NATH Telephone No : (02) 6283 2126										

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU02/01529

**Box I** Observations where certain claims were found unsearchable (Continuation of Item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos :  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos :  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos :  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

**Box II** Observations where unity of invention is lacking (Continuation of Item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. Independent Claims 1 and 14 relate to a demountable safety guard adapted for prevention (and a method for the prevention of) a accidental urged dislodgement of an article or liquid over an edge of a fixed horizontal surface. It is considered that a safety guard adapted to do so comprises a first "special technical feature".

Continued on a supplemental sheet.

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:1-14

**Remark on Protest**

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU02/01529

**Supplemental Box**

(To be used when the space in any of Boxes I to VIII is not sufficient)

**Continuation of Box No: II**

2. Independent Claims 15 and 16 relate to a method of (and claim 19 to an apparatus for) providing a safety guard member for the edge of a fixed horizontal surface wherein the guard member is inserted into a slot or is retained in an extruded channel which is considered to comprise a second "special technical feature.
3. Independent Claim 17 relates to a method of providing a safety guard member for the edge of a fixed horizontal surface wherein said guard member is attached along the edge by hinge elements.
4. Independent Claim 23 relates to a guard device comprised of two and only two components.

These groups are not so linked as to form a single general inventive concept, that is, they do not have any common inventive features, which define a contribution over the prior art. The common concept linking together these groups of claims is providing a safety guard. However this common feature is generic in the art.. Therefore these claims also lack unity a posteriori.

Besides, the group of claims (1 and 14) and Claims (15,16, 19) are not novel in the light of EP 364766B(Steinhilber) or US 5733022A (Whetstone) a posteriori. Claim group 23 also lacks novelty in the light of common general knowledge in the relevant art.

[Note: Claim 23 in our opinion is too broad and indeterminate as to make a meaningful search of its scope.]

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

**PCT/AU02/01529**

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member	
EP	364766	DE	3635573
WO	97/32503	JP	9238756
US	5733022	NONE	
			END OF ANNEX